



## Special Interest Group on Design Automation ACM/SIGDA E-NEWSLETTER, Vol. 54, No. 4

### SIGDA - The Resource for EDA Professionals

This newsletter is a free service for current SIGDA members and is added automatically with a new SIGDA membership.  
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Online archive: <https://www.sigda.org/publications/newsletter>

# SIGDA News

#### 1. [Intel to Place US\\$14 Billion Orders with TSMC, Says Report](#)

Over the next two years, Intel will place orders worth US\$14 billion with foundry TSMC, according to Taiwan-based semiconductor analyst Andrew Lu, who reported on China's WeChat platform.

#### 2. [Huawei Pursues Quad Patterning to Make 5nm Chips](#)

Huawei and a Chinese chipmaking equipment developer called SiCarrier were granted patents on self-aligned quad patterning late in 2023, according to Bloomberg.

#### 3. [Renesas General-Purpose 32-bit RISC-V MCUs with Own Core](#)

Renesas Electronics Corporation has announced the industry's first general-purpose 32-bit RISC-V-based microcontrollers (MCUs) built with an internally developed CPU core.

#### 4. [Sivers Semiconductors Demonstrates Advanced Laser Chip](#)

Sivers Semiconductors has announced that its subsidiary, Sivers Photonics, in collaboration with ecosystem partners, is demonstrating its advanced laser chip and array technology at the OFC Conference in San Diego.

#### 5. [4.5 Million Times Faster than the Average Broadband](#)

Fastest speed ever sent via specific wavelength bands that are not yet used in fiber optic systems. Aston University researchers have sent data 4.5 million times faster than the average home broadband.

# Messages from the EiCs

Dear ACM/SIGDA members,

We are excited to present to you April E-Newsletter. We encourage you to invite your students and colleagues to be a part of the SIGDA newsletter.

The newsletter covers a wide range of information from the upcoming conferences to technical news and activities of our community. Get involved and contact us if you want to contribute articles or announcements.

The newsletter is evolving. Please let us know what you think.

Happy reading!

*Debjit Sinha, Keni Qiu,*  
Editors-in-Chief,  
SIGDA E-News

## 6. [Micron has its own take on novel selector-only memory.](#)

Micron discussed the Single-chalcogenide X-Point Memory (SXM) technology in an invited paper at the International Electron Devices Meeting held in December 2023. The paper is entitled Status and Perspectives of Chalcogenide-based Cross-Point Memories.

## 7. [Test Automation Platform for Managed Wi-Fi Deployments](#)

Airties, a global leader in managed Wi-Fi for broadband service providers, has announced the commercial launch of Orbit, a continuous test automation platform for broadband service providers, customer premises equipment (CPE) manufacturers, and system-on-chip (SoC) manufacturers to support Smart Wi-Fi integrations and deployments.

## 8. [TSMC, Synopsys using Nvidia's AI-Capable cuLitho for Production](#)

Foundry TSMC and EDA tool supplier Synopsys are going into production with Nvidia's computational lithography platform to accelerate the process by up to a factor of 60.

# SIGDA Awards

### 1. Best Paper Award @ FPGA 2024

<https://www.isfpga.org/>

#### Formal Verification of Source-to-Source Transformations for HLS

Louis-Noël Pouchet (Colorado State University)  
Emily Tucker (Colorado State University)  
Niansong Zhang (Cornell University)  
Hongzheng Chen (Cornell University)  
Debjit Pal (University of Illinois at Chicago)  
Gabriel Rodríguez (CITIC, Universidade da Coruña)  
Zhiru Zhang (Cornell University)

### 2. ISPD Best Paper Award @ ISPD 2024

<https://ispd.cc/ispd2024/index.php?page=awards>

#### Novel Transformer Model Based Clustering Method for Standard Cell Design Automation

Chia-Tung Ho, Ajay Chandna, David Guan, Alvin Ho, Minsoo Kim, Yaguang Li and Haoxing Ren

# SIGDA EC

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*Yanzhi Wang,*  
AE for Local chapter news

*Xunzhao Yin,*  
AE for Awards

### 3. ISPD Lifetime Achievement Award @ ISPD 2024

<https://ispd.cc/ispd2024/index.php?page=awards>

Prof. Martin D. F. Wong

The 2024 International Symposium on Physical Design pays tribute to Prof. Martin D. F. Wong for his contributions to the physical design community.

### 4. EDAA Achievement Award 2024 @ DATE 2024

<https://www.date-conference.com/>

Ingrid Verbauwheide, KU Leuven, BE

### 5. IEEE CEDA Service Award @ DATE 2024

<https://www.date-conference.com/>

Ian O'Connor, École Centrale de Lyon, FR

### 6. IEEE CS TTTC Outstanding Contribution Award @ DATE 2024

<https://www.date-conference.com/>

Andy D. Pimentel, University of Amsterdam, NL

### 7. ACM SIGDA/CEDA/EDAA PhD Forum Prize @ DATE 2024

<https://www.date-conference.com/>

Lukas Burgholzer, TU Munich, DE

**DESIGN AUTOMATION TOOLS AND SOFTWARE FOR QUANTUM COMPUTING**

Matteo Riso, Politecnico di Torino, IT

**AUTOMATIC HARDWARE-AWARE DESIGN AND OPTIMIZATION OF DEEP LEARNING MODELS**

### 8. EDAA Outstanding Dissertations Award @ DATE 2024

<https://www.date-conference.com/>

- **Topic 1 – New directions in systems design methods and tools, simulation and validation, embedded software design and optimization for embedded, cyber-physical, secure and learning systems**

Stefan Nikolic, EPFL, CH (Advisor: Prof. Paolo Ienne, EPFL, CH)  
**Automating the Design of Programmable Interconnect for Reconfigurable Architectures**

*Xun Jiao,*

AE for What is

*Muhammad Shafique,*

AE for What is

*Rajsaktish Sankaranarayanan,*

AE for Researcher spotlight

*Xin Zhao,*

AE for Paper submission

*Ying Wang,*

AE for Technical activities

*Jiaqi Zhang,*

AE for Technical activities

# Paper Deadlines

## ICECET'24 - IEEE International Conference on Electrical, Computer and Energy Technologies

Sydney, Australia

Deadline: Apr. 7, 2024

July 25-27, 2024

[www.icecet.com](http://www.icecet.com)

## VLSI-SoC'24 – IFIP/IEEE Int'l Conference on Very Large Scale Integration

Tanger, Morocco

Deadline: Apr. 8, 2024 (Abstracts

due: Apr. 1, 2024)

Oct. 6-9, 2024

<http://www.vlsi-soc.com>

## MICRO'24 – IEEE/ACM Int'l Symposium on Microarchitecture

Austin, Texas

Deadline: Apr. 18, 2024 (Abstracts

due: Apr. 11, 2024)

Nov. 2-6, 2024

<http://www.microarch.org/micro57>

- **Topic 2 – New directions in SoC platforms co-design, novel architectures for future computing in design flows, and power management**

NO AWARD

- **Topic 3 – New directions in logic, physical design and CAD for analog/mixed-signal, nano-scale and emerging technologies**

Nan Wu, UC Santa Barbara, US (Advisor: Prof. Yuan Xie, UC Santa Barbara, US)

**Machine Learning Empowered Agile Hardware Design and Design Automation**

- **Topic 4 – New directions in safety, reliability and security-aware hardware design, validation and test**

Zhixin Pin, University of Florida, US (Advisor: Prof. Prabhat Mishra, University of Florida, US)

**Defending Systems Against Malicious Attacks using Machine Learning**

## 9. DATE Fellow Award @ DATE 2024

<https://www.date-conference.com/>

Ian O' Connor, École Centrale de Lyon, FR

**For outstanding service contribution for DATE as General Chair of DATE 2023.**

## 10. DATE Best Paper Awards @ DATE 2024

<https://www.date-conference.com/>

- **D-Track**

Xueyuan Liu<sup>1</sup>, Zhuoran Song<sup>1</sup>, Guohao Dai<sup>1</sup>, Gang Li<sup>1</sup>, Can Xiao<sup>2</sup>, Yan Xiang<sup>2</sup>, Dehui Kong<sup>2</sup>, Ke Xu<sup>2</sup> and Xiaoyao Liang<sup>1</sup>

<sup>1</sup> Shanghai Jiao Tong University, CN; <sup>2</sup> Sanechips Technology, CN

**FusionArch: A Fusion-Based Accelerator for Point-Based Point Cloud Neural Networks**

- **A-Track**

Matteo Risso<sup>1</sup>, Chen Xie<sup>1</sup>, Francesco Daghero<sup>1</sup>, Alessio Burrello<sup>2</sup>, Seyedmorteza Mollaei<sup>1</sup>, Marco Castellano<sup>3</sup>, Enrico Macii<sup>1</sup>, Massimo Poncino<sup>1</sup> and Daniele Jahier Pagliari<sup>1</sup>

<sup>1</sup> Politecnico di Torino, IT; <sup>2</sup> Politecnico di Torino | Università di Bologna, IT; <sup>3</sup> STMicroelectronics, IT

## RTCSA'24 - The 30th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications

Sokcho, South Korea

Deadline: Apr. 19, 2024 (Abstracts due: Apr. 12, 2024)

Aug. 21-23, 2024

<https://rtcsa2024.github.io/>

## ICCAD'24 – IEEE/ACM Int'l Conference on Computer-Aided Design

NY

Deadline: May 5, 2024 (Abstracts due: Apr. 28, 2024)

Oct/Nov, 2024

<https://iccad.com/>

## MLCAD'24 - ACM/IEEE Workshop on Machine Learning for CAD

Snowbird, Utah

Deadline: May 18, 2024

Sep. 9-11, 2024

<https://mlcad-workshop.org/>

## OSCAR'24 - Third Workshop on Open-Source Computer Architecture Research

Buenos Aires, Argentina (co-located with ISCA 2024)

Abstract deadline: April 29, 2024

June 29 or 30, 2024

<https://oscar-workshop.github.io/>

# Upcoming Conferences

## ISQED'24 - Int'l Symposium on Quality Electronic Design

San Francisco, CA

Apr. 3-5, 2024

<http://www.isqed.org>

## **HW-SW Optimization of DNNs for Privacy-preserving People Counting on Low-resolution Infrared Arrays**

- **T-Track**

Yujin Lim, Dongwhee Kim and Jung-rae Kim, Sungkyunkwan University, KR

### **SELCC: Enhancing MLC Reliability and Endurance with Single-Cell Error Correction Codes**

- **E-Track**

Yifeng Xiao<sup>1</sup>, Chanwook Oh<sup>1</sup>, Michele Lora<sup>2</sup> and Pierluigi Nuzzo<sup>1</sup>  
<sup>1</sup> University of Southern California, US; <sup>2</sup> Università di Verona, IT  
**Efficient Exploration of Cyber-Physical System Architectures Using Contracts and Subgraph Isomorphism**

## **11. Outstanding Reviewer Awards @ DATE 2024**

<https://www.date-conference.com/>

- **D-Track**

Todor Stefanov, Leiden University, NL  
Alejandro Valero, Universidad de Zaragoza, ES

- **A-Track**

Michael Pehl, Technical University of Munich, DE  
Giovanni Amedeo Cirillo, STMicroelectronics, IT

- **T-Track**

Harish Dixit, Meta Platforms Inc., US  
Riccardo Cantoro, Politecnico di Torino, IT

- **E-Track**

Hadjer Benmeziane, IBM Research, CH  
Mohammad Ashjaei, Mälardalen University, SE

## **12. Young People Programme University Fair Award @ DATE 2024**

<https://www.date-conference.com/>

Marc Solé Bonet<sup>1</sup>, Ivan Rodriguez Ferrandez<sup>2</sup>, Dimitris Aspetakis<sup>1</sup>,  
Jannis Wolf<sup>1</sup>, Matina Maria Trompouki<sup>1</sup> and Leonidas Kosmidis<sup>2</sup>  
<sup>1</sup> BSC, ES; <sup>2</sup> UPC | BSC, ES

### **Hardware and Software Designs for High Performance and Reliable Space Processing**

## **HOST'24 – IEEE Int'l Symposium on Hardware-Oriented Security and Trust**

Washington DC  
May 6-9, 2024  
<http://www.hostsymposium.org>

## **FCCM' 24 - IEEE International Symposium On Field-Programmable Custom Computing Machines**

Orlando, FL  
May 5-8, 2024  
<https://www.fccm.org/>

## **MDTS'24 – IEEE Microelectronics Design & Test Symposium**

Albany, NY  
May 13-15, 2024  
<http://natw.ieee.org>

## **RTAS'24 - IEEE Real-Time and Embedded Technology and Applications Symposium**

Hong Kong, China  
May 13-16, 2024  
<http://2024.rtas.org>

## **MDTS'24 – IEEE Microelectronics Design & Test Symposium**

Albany, NY  
May 13-15, 2024  
<http://natw.ieee.org>

## **ISCAS'24 – IEEE Int'l Symposium on Circuits and Systems**

Singapore  
May 19-22, 2024  
<http://iscas2024.org>

## **IWLS'24 - International Workshop on Logic & Synthesis**

ETH Zurich, Zurich, Switzerland  
June 6-7, 2024  
<https://www.iwls.org>

### 13. ASD Outstanding Paper Award @ DATE 2024

<https://www.date-conference.com/>

#### in line with the DATE Special Initiative "Autonomous Systems Design"

Justin Davis and Mehmet Belviranli, Colorado School of Mines, US

Context-aware Multi-Model Object Detection for Diversely Heterogeneous Compute Systems

# SIGDA Partner Journal

ACM Transactions on Design Automation of Electronic Systems, TODAES, would like to give thanks to Dr. X. Sharon Hu for her contributions as Editor-in-Chief and welcomes Dr. Jiang Hu as its new Editor-in-Chief for the term of February 15, 2024 to January 31, 2027. Dr. Jiang Hu is a Professor of Electrical & Computer Engineering at Texas A&M University.

ACM TODAES publishes innovative work documenting significant research and development advances on the specification, design, analysis, simulation, testing, and evaluation of electronic systems, emphasizing a computer science/engineering orientation. Design automation for machine learning/AI and machine learning/AI for design automation are very much welcomed.

If you are an active researcher in the design and design automation field and would like to be part of the TODAES review board, please fill out the following [reviewer form](#). TODAES recognizes those reviewers that provide timely and high-quality reviews through the [Distinguished Review Board](#). TODAES also recognizes papers and outstanding junior researchers through [best paper](#) and [rookie of the year](#) award. Authors can send their paper submissions on the [manuscript portal](#).

TODAES welcomes special issue proposals from leading researchers/practitioners. Such proposals should be emailed to Joerg Henkel, Senior Associate Editor, at [joerg.henkel@kit.edu](mailto:joerg.henkel@kit.edu).

### GLSVLSI'24 – ACM Great Lakes Symposium on VLSI

Tampa Bay Area, FL  
June 12-14, 2024  
<http://www.glsvlsi.org>

### DAC'24 – Design Automation Conference

San Francisco, CA  
June 23-27, 2024  
<http://www.dac.com/>

### ISVLSI'24 – IEEE Computer Society Annual Symposium on VLSI

Knoxville, TN  
July 1-3, 2024  
<http://www.ieee-isvlsi.org>

### ISLPED'24 – ACM/IEEE Int'l Symposium on Low Power Electronics and Design

Newport Beach, CA  
Aug. 5-7, 2024  
<http://www.islped.org>

### ESWEEK'24 - Embedded Systems Week

Raleigh, NC  
Sept. 29 - Oct. 4, 2024  
<http://www.esweek.org>

### PACT'24 - Int'l Conference on Parallel Architectures and Compilation Techniques

Long Beach, CA  
Oct. 13-16, 2024  
<http://www.pactconf.org>

# Technical Activities

## 1. [Nvidia GTC 2024: Jensen Huang Goes for AI Dominance](#)

Nvidia's founder and CEO Jensen Huang delivered a two-hour keynote speech to a full house of 11,000 massively receptive attendees at the SAP Center stadium in San Jose, California, with a message: AI will transform everything, and Nvidia will be the powerhouse that delivers that capability...

## 2. [2024 Smart City Summit & Expo: AI is Everywhere](#)

With the theme Digital and Green Transformation, this year's SCSE emphasizes the need for government and businesses to accelerate the pace of the dual transformation...

## 3. [Synopsys Releases Complete 1.6T Ethernet IP Solution](#)

Synopsys' 1.6T Ethernet IP solution delivers a dramatic increase in bandwidth and throughput for data-intensive AI workloads...

## 4. [MWC 2024 Unveils the Future with 6G](#)

While specific details about 6G are still under development, experts at MWC 2024 shared their insights into potential applications and areas of focus where this technology could have a significant impact...

# Job Positions

## 1. University of California Davis, US

**Job Title:** Assistant Professor of Computer Engineering

**Description:** The Department of Electrical and Computer Engineering (ECE) in the College of Engineering (CoE) of the University of California, Davis (UC Davis) is seeking a Assistant Professor of Teaching (formal title Lecturer with Potential Security of Employment) position in Computer Engineering. The Assistant Professor of Teaching series emphasizes excellence in teaching and student-centered efforts and complements the research-focused Professor series at the University of California. Appointment conveys membership in the Academic Senate and,

contingent upon promotion, security of employment which is analogous to tenure. Professors of Teaching are expected to be outstanding teachers, engage in professional and/or scholarly achievement and activities, and provide service to the department, university, and public. Attractive candidates will be outstanding educators who have a strong and demonstrable interest in teaching, and sound ideas to enhance the computer engineering undergraduate curricula and improve student learning and engagement at UC Davis. A successful applicant will be able to 1) teach core undergraduate computer engineering courses in areas of computer architecture, digital circuits and systems, embedded systems, and computer programming, 2) apply curricular revisions to enhance students' learning in the core courses with an emphasis on promoting hands-on education, and 3) demonstrate their ability to introduce new courses in other essential/emerging fields in computer engineering. Examples of such fields include (but are not limited to) parallel computing or operating systems or robotics or hardware-software codesign, etc. For more information, please refer to <https://facultyvacancies.com/assistant-professor-of-computer-engineering.i37928.html>.

## 2. University of California Santa Barbara, US

**Job Title:** Researcher in Computer Engineering

**Description:** The Department of Electrical and Computer Engineering invites applications for a pool of temporary research positions (Assistant Specialists & Associate Specialists). Assistant Specialists enable research as part of a team and may provide some independent input into the planning and execution of the research. Associate Specialists normally provide considerable independent input into the planning and execution of the research, have a record of academic accomplishments, and include contributions to published research in the field. Appointees to the Specialist series engage in specialized research, professional activity, and University and/or public service. Specialists use their professional expertise to make scientific and scholarly contributions to the research enterprise of the University and to achieve recognition in the professional and scientific community. Specialists may participate in University and/or public service depending upon funding source and duties of the position. The Department is especially interested in candidates who can contribute to the diversity and excellence of the academic community through research, teaching, and service as appropriate to the position. The posting will remain open until October 31, 2024 to accommodate department needs. Appointment start date and program duration will be determined when positions become available. The pool will close on October 31, 2024; if you would like to continue to be considered after that time, and the pooled position is advertised again, you will need to submit a new application. For more information, please refer to <https://facultyvacancies.com/researcher-in-computer-engineering.i38005.html>.



### 3. Research Center Julich, Germany

**Job Title:** Postdoc Position in Computer Science

**Description:** Computing performance plays a very critical role in the use of model-based approaches to the planning, design, and operation of energy systems. At IEK-10, the department "High Performance Computing" focuses on the development of innovative methodologies for the parallelization of simulation algorithms as well as on the best exploitation of hardware architectures. In this context, we are developing an innovative High Performance Computing (HPC) solver for the simulation of a multi-modal energy system with funding from the Helmholtz Foundation and DFG.

Your areas of research / tasks will include among others: Supervision of students and doctoral candidates; Acquisition and leading of research projects; Define innovative parallelization algorithms for DAE and ODE systems; Explore the use of heterogeneous architectures for best runtime performance; Representation in national and international networks; Presentation of your research results at (international) meetings and conferences, as well as in the form of publications in relevant journals. For more information, please refer to <https://facultyvacancies.com/postdoc-position-in-computer-science,i38190.html>.

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